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ABSTRACT

This document contains an edited transcript of a forum held as part of a research project called Thinkahead, which was designed to serve as a catalyst for developing educational models that will prepare people to think more critically and creatively in the world of the future. The forum participants, all business people concerned about the ways in which the educational system prepares young people for the world of work, were invited to share their experiences and recommendations. The three questions around which the discussion ranged were (1) What will be the basis of the future economy and how will it affect the workplace?; (2) Which thinking skills, interpersonal skills, and strategies will be necessary to create the world of the future?; and (3) How should young people be prepared for the envisioned future? The participants were Martin Covington, Institute of Personality Assessment and Research at the University of California at Berkeley; Caroline Boitano, BankAmerica Foundation and Bank of America-Giannini Foundation; Kit Durgin, Women's Foundation; Fernando Flores, Logonet, Inc.; Brenda McChesney, Pacific Bell; Cornell Maier, Kaiser Aluminum and Chemical Corporation; Saul Rockman, Apple Computer; and David Stern, University of California at Berkeley. (CML)

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FIERI FORUM TRANSCRIPTS

THE THINKAHEAD PROJECT

FORUM #3

WORKING IN THE FUTURE

Convened by:

THE WHITMAN INSTITUTE
405 Davis Court
San Francisco, California

Thursday, September 21, 1989

U.S. DEPARTMENT OF EDUCATION
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A note to the reader...

THE WHITMAN INSTITUTE is a nonprofit educational corporation located in San Francisco. The Institute received tax-exempt status in September, 1985. Its mission, as stated in its bylaws, is to

"devise practical strategies and interventions that will enable individuals to improve their thinking skills in relation to everyday problem solving, to lead action-oriented and value-directed lives, and to achieve the kind of self-reliance that is appropriate and necessary in a technologically sophisticated society."

The scope of our research interests is quite broad, our perspective is generalist, and our aims are practical. Essentially, we are concerned with the way humans behave (and don't). As indicated in our Mission Statement, however, our bedrock interest is in the thinking process which, for us, underlies and directs all human behavior.

The Institute's publications, designated *Fieri Reports, Fieri Abstracts and Reviews, and Fieri Forum Transcripts* are described below. *Fieri*, meaning *to become* in Latin, has been adopted as a fitting motto for our publications and is the root of our somewhat playful acronym: Foundation for Individual Excellence and Retraining of the Intellect.

FIERI REPORTS	Occasional reports generated from our research projects on various topics related to human behavior
FIERI ABSTRACTS AND REVIEWS	A compilation of abstracts, critiques, and general reviews of books, articles, and programs dealing with various topics related to human behavior (interviews with social and behavioral science researchers are included in this series)
FIERI FORUM TRANSCRIPTS	Edited transcripts of forums conducted by the Institute with professionals and laypersons working in various fields related to human behavior

More information about The Whitman Institute can be obtained by contacting

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INTRODUCTION

In January 1989 The Whitman Institute launched Think**Ahead**, a research project designed to serve as a catalyst for developing educational models that will prepare people to think more critically and creatively in the world of the future. The first year of Think**Ahead** is devoted to convening a series of forums featuring participants whose vantage points we regard as vital to thinking about thinking in American society, whether within or outside of the school system. All forums are moderated by Martin Covington, Professor of Psychology at U.C. Berkeley and our project advisor. The forums are described below:

Learning in the Future brought together leading educational researchers from across the country to share their work with us and to speculate in informed ways about education for the 21st century. It was held on March 28, 1989.

Designing the Future invited forward-looking thinkers representing different professions and academic disciplines to set forth their views of what the next century is likely to demand and how those demands might affect education, in the broadest sense of the word. It was held on June 15, 1989.

Working in the Future, held on September 21, 1989, invited business people, especially those concerned about the ways in which the educational system prepares young people for the world of work, to share their experience and recommendations with us.

Lifelong Thinking, our final forum, will seek out people who have worked closely with redesigning educational programs, whether in or outside of the classroom. Together, we will explore practical ideas for improving thinking and learning in the community at large. (This forum theme, a shift from our original intent to convene teachers, administrators, and others concerned with *Restructuring Future Education*, was an indirect outcome of the first three forums which made us re-think how best to achieve the stated purpose of the project within the larger goals of the Institute.)

At the completion of the four forums, The Whitman Institute plans to hold a final review session made up of selected participants and observers from the four forums. This final session will permit us to integrate the work of the forums, to evaluate our findings and our process, and to discuss future directions. Edited transcripts of all forums are available on request.

PARTICIPANTS

ABOUT OUR PARTICIPANTS . . .

MARTIN V. COVINGTON moderates our ThinkAhead forums. He is a Professor of Psychology and Research Psychologist for the Institute of Personality Assessment and Research at the University of California at Berkeley and senior author of the "Productive Thinking Program" for elementary school students. Dr. Covington's current research interest is in children's conception of the future. He is also a member of the California Task Force to Promote Self-Esteem and Personal and Social Responsibility.

CAROLINE BOITANO is Vice President and Associate Director of the BankAmerica Foundation and Administrator of the Bank of America-Giannini Foundation. She was responsible for establishing the California Educational Initiatives Fund, a cooperatively funded competitive grants program for public education in California. Currently, Ms. Boitano is on the boards of the Puente Project, the National Dropout Prevention Network, and the California Consortium for Education Foundations.

KIT DURGIN worked for Levi Strauss Company for twenty years, where, until this past June, she was Director of Corporate Communications. As a volunteer for The Women's Foundation in San Francisco for the past six years, she has served as a board member and Chair of both its Planning Committee and Major Gifts Committee. One of her major interests is in the development of educational programs to prepare girls and women for the changing workforce.

FERNANDO FLORES is Founder and President of Logonet, Inc., an educational and training firm in Emeryville that offers courses in business management, human relations and communication, leadership and entrepreneurship. He is also Founder and Chairman of Action Technologies, Inc., a communication and software design company. Previously he was a Research Associate at Stanford University's Departments of Computer Science and Communications, and is co-author with Professor Terry Winograd of *Understanding Computers and Cognition*. Dr. Flores holds a Ph.D. in Philosophy of Language.

BRENDA McCHESNEY, Education Market Manager at Pacific Bell, is in charge of statewide implementation of education strategies--in particular, distant learning programs in the public schools. Before taking on that responsibility, she was the Director of PacBell's Intelligent Network Taskforce. Ms. McChesney is a board member of the U. S. Distant Learning Association and the California Postsecondary Education Commission, an advisory commission on telecommunication in education.

CORNELL MAIER retired last year as Chairman/CEO of Kaiser Aluminum & Chemical Corporation after 38 years with the company. Among the many boards on which he currently serves are: the Northern California Educational Task Force of the California Business

Roundtable; California Leadership; the California Economic Development Corporation; the School of Business at the University of California at Berkeley; Holy Names College; and the Bay Area Council.

SAUL ROCKMAN is Manager of Education Research at Apple Computer. He is responsible for analyzing and disseminating research on the impact of technology on education, and for establishing partnerships with educational organizations to help develop policies related to technology in education. Before joining Apple, he was Director of Technology Programs at the Far West Regional Educational Laboratory in San Francisco. He has also conducted research on instructional television programs and developed and managed a computer and video project on problem solving.

DAVID STERN is an economist and Professor of Education at the University of California at Berkeley. He is the author of *Managing Human Resources: The Art of Full Employment*, an investigation of employment practices. His current research project on the increased demands for learning in the workplace is funded by the U.S. Departments of Labor and Education through the National Center for Research and Vocational Education headquartered at the UC Berkeley campus.

ABOUT OUR OBSERVERS . . .

FRED WHITMAN: Founder, President, Philosopher, The Whitman Institute (TWI)

LAUREL OLSON COOK: Executive Director, TWI

JOHN ESTERLE: Director of Research, TWI

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JOELLEN FISHERKELLER: Summer Intern from UC Berkeley (doctoral candidate in School of Education) working on Think**Ahead** and other TWI projects

TED KAHN: Manager, User Education, Digital F/X, Mountain View, CA

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JUDY MATHIS: Continuing Education Specialist, UC Berkeley Extension

CARLOS CORNEJO: Visiting Scholar from Madrid, Spain

EDITED PROCEEDINGS

MARTIN COVINGTON (MODERATOR): *Welcome, everyone, to the third forum in the ThinkAhead series, "Working in the Future," sponsored by The Whitman Institute. Our focus today is on the stake that business has, or should have, in the process of educating and preparing the workforce for the world of the future.*

We'd like to divide the morning into three broad questions. The first question deals with what you foresee as the underlying basis for the future economy and how that will affect the workplace. The second question concerns what sorts of thinking, interpersonal skills and strategies might be necessary, not only to match the world of the future but also to drive it and to create it. And the third question is how we prepare young people for a future that we have either envisioned or projected, including alternatives to the traditional education that we have all experienced and still see around us.

Predicting the future, of course, is awfully difficult, partly because we often look at the wrong things. We should perhaps not be interested so much in projecting the number of microcomputers in classrooms in the year 2020 as much as how the technological revolution will influence relationships between teachers and students, students and society, and teachers and society.

The Institute would like to stress its interest in what things ought to be like, rather than what we project them to be like. And we should look at the appropriate role of the workplace and the workforce in that process.

Let's start with the first question: What sort of workplace do we envision for America in the future, and what sort of economic base is likely to drive it? Kit, would you start?

KIT DURGIN: My own feeling is that service will be the distinguishing competitive factor in the workplace of the future. However, this assumes the production aspect is working, and working extremely well. For instance, at Levi Strauss, the amount of time it takes to design and produce a garment needs to be shortened to respond to the faster changing market. This requires people at all levels of the organization to make decisions quickly and to have a sense of the context in which they're operating, right down to the sewing machine operator or the person laundering the garments. Service, in my thinking, is not just the interface with the customer, it's anticipating what the customer wants.

MARTIN COVINGTON: *Levi Strauss is a production-oriented business and if we're shifting toward service, then that becomes a much more interesting issue. How about some of the rest of us in the service area?*

DAVID STERN: I'd like to caution about dichotomizing service and production. Service work is taking on a lot of the characteristics of classical manufacturing, and manufacturing, as Kit was just saying, is becoming more closely attended to the market and, therefore, taking on more of the characteristics of service. I think the key element is exactly what you said, that in both sectors, cycle times are diminishing so that the rate of product innovation is increasing and the necessity for continual learning on the part of employees is accelerating.

I would venture that as a general trend this is occurring both in manufacturing and in so-called service.

SAUL ROCKMAN: The community I'm working in now is very different from the one I worked in before; that is, I went from the nonprofit, individual-contributor work environment to one that requires partnerships and consensual kinds of relationships across different departments. One thing I've noticed is that decision making, the key to moving forward in any activity, has been driven further and further downward in the company. The amount of information available for people to act on has grown and along with it the amount of responsibility an individual has in the company. At every level of the organization people are making decisions that affect how the rest of the world perceives their organization. This leads back to the issue of training and education in that there are many people well-equipped intellectually to make decisions and represent the organization, but they haven't been prepared to take on these responsibilities.

I would agree that the distinction between manufacturing and service is gone, especially at Apple. I don't know what it means anymore to be in a company that produces a product because I don't know anybody who works on a product; manufacturing of computers is done by computers. We have a shipping department, but I don't know what else we need.

DAVID STERN: Just another caution about presuming that all trends are in the same direction. While we can see the downward delegation of decision making in many organizations, we also see, even within the same organizations, work that is still tailorized and made as routine as possible, leaving very little room for individual decision making. There are service workers whose key strokes are counted by the minute and manufacturing workers who are still supervised by drill sergeants telling them to work faster. Those realities exist, too, and I don't know that it's a foregone conclusion that the upskilling of work and the downward delegation of responsibility is going to dominate, although it certainly is happening in some places.

SAUL ROCKMAN: It's kind of ridiculous to consider McDonald's employees high-technology workers when they press a picture of a Big Mac on a keyboard and the computer takes care of everything else. I think back to when I was in college and would call up L.L. Bean to place an order. What I thought was a little old lady would answer and say, "Yes, dear, tell me what you want." I imagined her sitting there with a pen and a pad of paper writing down my order and taking my shipping instructions. Then I imagined her clipping it on a clothespin and running it back along a straight line to the shipping department which would assemble the order and send it out. Now my son calls L.L. Bean, and the first thing they ask for is his credit card number. Then the employee says, "Give me the code numbers of the items you want to order." I imagine the little old lady who used to answer my calls is now sitting in front of a keyboard entering the data into a terminal that transmits the same information back to the warehouse where someone with a bar code reader assembles his order and ships it out. I imagine five years from now, the little old lady--who is now seen as a high-tech worker even though she's doing the exact same thing she did before--is going to be out of a job because I am going to punch in my credit card number and the codes of the items I want, and I won't talk to anybody. That's the real change I'm seeing in the low end

of the workforce. People may move from a labor-intensive job to a high-tech job and end up unemployed. It frightens me that technology is pushing us in this direction.

BRENDA McCHESNEY: But is it the technology that's pushing us that way, or apprehension about whether we can manage the different changes going on in the workplace? Ten years from now we're looking at dramatically changed demographics in California. Will the baby boomers--soon the older work force--be able to work? We've got a multilingual, multicultural society, and we're not really sure how to deal with attitudes that don't come from the culture that we're used to dealing with. Do we fear that because we won't be able to handle all these changes we have to make work as automated as possible to avoid dealing with them?

CAROLINE BOITANO: And if consumers are going to be punching out their orders they're going to have to understand technology better, too. There's going to be a whole different set of expectations from the consumers as well as from the workplace.

DAVID STERN: I see companies at this point trying to deal with the changing structure of society by taking on more of the social responsibility. Companies are looking at how to handle things they haven't had to deal with before, like child care and flexible work hours.

KIT DURGIN: I think women and girls typically haven't had the kinds of education to prepare them for the workplace, or for business thinking. My view is that they need to be brought along in the educational system just like men to be prepared for that. One unique thing might be preparing them for discrimination and the subtleties of how that gets played out.

CAROLINE BOITANO: Until very recently, I don't know that high expectations were put forth for young women. They need to understand that their training will lead to some kind of work and that they should expect to have to earn an income. On the other hand, I don't think we ought to train out of young women the kind of capable, adaptable and flexible behaviors the future workplace is going to need. We need to work more cooperatively and to avoid the kind of contest mentality that very often dominates in a male-oriented workplace. For a workplace to move forward, it's going to have to be more open, more collaborative, display more team work and less of a win-or-lose mentality--skills women often bring into the workplace.

DAVID STERN: As a male, I have a response to that. I'm not sure that there's any enduring difference between boys and girls in their capacity for cooperation. While demurring on that, I'd like to support the idea that these cooperative skills are certainly important and are having an increasing role in some work settings, both male and female.

CORNELL MAIER: Another factor we need to talk about is the educational background of different employees. We need to divide employees into two categories: those who come from the universities, where generally we're getting talented people, and those who come from high schools, where we're not getting the kind of employees we want. We need to make sure that we talk about high school graduates because most companies hire more of them

than they do college graduates; that's going to continue whether we're talking service or manufacturing. PG&E has a lot more people working out on the lines than they do engineers working in the office. We've lost a lot of industry to Japan, Germany, and a lot of other countries, but I think that trend is changing in America, and needs to change. We aren't going to survive if McDonald's only sells hamburgers to Apple and Apple only sells computers to McDonald's. Somebody has to build trucks to deliver the computers and the hamburgers, raise the beef, and make the plastics, steel and copper that go into the computers and all the other things. So, we aren't going to survive with only service industries. I think manufacturing in this country will be very dominant and perhaps more dominant than it is today. Both manufacturing and service are really important and both require the same kind of skills. Yet we're not facing up to the problem of how to prepare youngsters with the higher skills in math, science, and writing. And we're not preparing future employees to assume more responsibility.

FERNANDO FLORES: I want to give you a different perspective as I am only thirteen years here. I don't feel I can predict how Americans are going to live and work, but at the same time, because I am an immigrant, I can see a little bit of other things. We need a different category for thinking about work and thinking about computers. I believe the way that we are looking today is wrong. We are using a category that comes from a society of industrial manufacturing. By definition this was a very steady society where you designed something for five or ten years, skills stayed the same, and computation done by structural and mechanical engineers took many years. Now such calculations can be done in seconds and many of the things we used to do are now done differently.

I believe every age has a different kind of a paradigm. After the Second World War there was a paradigm about management and division of management. I believe the corporation that did more than any other to support this paradigm was General Motors. They were for many years the most advanced school for management in the world and they really taught how to produce products on a worldwide scale. But the products they produced were finite compared with the number of products produced today by a company like Apple, or IBM. A tremendous variety of things are happening today and the production cycle now is eleven or twelve months.

In my opinion, we are shifting from a paradigm of information-processing to a paradigm of conversation. The difference between conversation and information processing is that in conversation innovation, initiative, trust, mutual specification, and listening begin to dominate. At the same time, the conversation is never one conversation; it's a network of conversations. You see, we are talking about world competition. We are talking about a product manufactured in Singapore, sold in Washington, with software that comes from Europe and is designed by an Italian engineer--all happening at the same time. In addition to all of this, the tools for calculating things are becoming very powerful so that calculations for building and thinking can be done very quickly. At the same time, people are asking for more things. People don't accept standardization, they want more customization. The customer now has more options, so companies need to listen to them and achieve harmony in design and manufacturing. That is why I believe you when you say that the work we need now is very different from the kind of work that has gone before. Work now involves

designing, marketing, and specifying simultaneously in a globally competitive society, with a work environment that has more minorities and women participating. This is creating an altogether different condition in my opinion. We need to understand what we are talking about because one of the things that is happening is that maybe we are preparing people with obsolete skills.

I want to give you an example from computer science. In 1976, when I first arrived here, one of the things we taught people was the digital sequence for keyboards. Today, you don't do that. Today all that is obsolete and the teaching of it has disappeared. Now there is a different language, because people are doing different things. The people doing this work have also disappeared. The old problem was how to solve the computer. The new problem is different. I now want to be like a philosopher. In a peasant society, you have the same tools and the same skills you learn from your father. In an industrial society you learn from certain basic language and manuals. But today, we have something very different. Everything you learn today is going to be obsolete tomorrow if learning is learning things or procedures. Therefore, we need something different, not learning and procedures. What is it? I believe it is the conversation paradigm and the skills to connect it.

MARTIN COVINGTON: *I think this leads us neatly into the second question about what sorts of skills might be important in the future along with technological capabilities.*

CAROLINE BOITANO: Specific skills, I think, are very difficult to label. I always get a little nervous with the word *skills* as opposed to *knowledge*. Also, what's important is not necessarily the ability to know the fact or the figure you need, but to know where you can go to get the information you need. I like the paradigm of conversation. I think it encapsulates what the future is going to hold for most of us. The whole paradigm of conversation is important because people need sufficient knowledge to be able to think and reason constructively and critically and approach situations from different perspectives for which there is no right answer. Process is an integral part of what we're doing and conversation is a way of pulling processes together from different bases.

KIT DURGIN: I couldn't agree more with what you've just said, and I think a risk is that the workplace, being more technologically oriented in terms of everybody using computers, tends to set up a situation where people feel as if they don't have to have conversations because they can communicate completely by computer. That can end up causing a road block in terms of...

FERNANDO FLORES: That may be where the crisis is going to be. So far, the positions occupied by middle managers and up are held by people who come from the old paradigm, and they are going to do what you've just said. On the other hand, the global competition in the marketplace doesn't allow them to be this way, because they will lose out if they are. Let me give you an example to give you a sense of this. Last night, I was invited to a very big American company to talk with them because they have a great concern about their new president. He's a software genius and an excellent manager, but people began to realize that he's too forceful and doesn't listen. And that's beginning to cause a crisis. They are going to have to do something different. That's why I'm talking with them. And I say that

they will do something different because in the end they will not be able to afford to tolerate him. This is happening more and more.

CAROLINE BOITANO: In school we build in young people the concept that there are right and wrong answers. If they fill in all the right blanks, they're going to get an A or a B--goals that are not in their best interests in the long run. If we can set standards in the classroom for achieving the capacity to think and be wrong and to look at different sides of an issue and come up with a variety or responses, we will begin to build the capacity for people to really listen to each other. It's important that people be able to put themselves in a group situation and be able to listen and understand and disagree without being labeled right or wrong, winner or loser.

DAVID STERN: One of the most glaring dissimilarities between school and the real world is the extent to which schools reward individual achievement. I, too, am taken with this idea of conversation, but I think that not everybody is going to be in the conversation. We have to remember that according to conventional numerical projections, the growth and demand for janitors is going to be greater than the growth and demand for high-tech workers. These aren't people who are going to be in this international, computer-mediated conversation in the foreseeable future. The risk, of course, is that we end up with two castes: the college-educated will go into this wonderful political, competitive, and creative environment, and the high school graduates or dropouts will be dumped into the other kind of job. That's something that we have to strive mightily to avoid.

FERNANDO FLORES: Or something worse, because it could be that the son of the janitor is never going to need to go to high school. He's going to sell crack.

DAVID STERN: That's right, the whole undereconomy.

CORNELL MAIER: In 1980, the California Business Roundtable--comprised of about 90 large companies in the state, such as Pac Bell, Bank of America, and Levi Strauss--took on K through 12 education as the number one problem in the state. Some educators told us that business was at fault for not telling them what kind of skills employees need to have. That response used to bother me, but it doesn't anymore--even though I still hear it. I learned that it's a copout. What they're really saying is they don't want business meddling in their affairs because it's very clear what business wants: business wants students who have basic skills in communication, reading, writing, arithmetic, and some basic knowledge of computers so they can be trained by a company. And they need these basic skills in communication and thinking whether they're going to college or not. Without these basic skills, they're not trainable--something we already see happening to a large segment of our population.

I think we're all concerned about discrimination against women, but I'm a lot more concerned about the employment problems of minority kids in our cities.

CAROLINE BOITANO: What's really happening in today's environment is in many ways we're discovering that we shouldn't have relinquished our role as educators to the "professionals," quote unquote. We need to go back and reassert that, as citizens, we all have

a responsibility in that arena and we need to continue to voice our opinions and be heard. Now, however, the, quote unquote, "professionals,"--and I don't mean this to be a derogatory comment--are feeling a little threatened by the concern of the citizenry over how, when, and why we're educating, and whom we're educating. I think Cornell's point is very well taken. The system isn't working for a growing number of our citizens. As a result, they're not going to be able to function within the society in the way we want them to function.

BRENDA McCHESNEY: I've noticed in some of the forums and committees I've been involved in over the last couple of years that in trying to label whose fault it is we seem to fragment things unnecessarily. For example, there's no reason why K-12 should have a specific responsibility that ends with grade 12 and that the universities should pick it up and then business do something else. I think we're starting to see that learning is a pre-K through lifelong experience that business has to be involved with, through partnerships or some kind of collaboration.

DAVID STERN: Especially because nowadays so many students at the secondary and post-secondary levels are working. Our customary way of looking at life's sequence is that it goes K-12, college, then work, but it doesn't go that way at all. It goes elementary school and a little bit of work, high school and a lot of work, college and maybe full-time work, and then career and maybe continued schooling. When we talk about business partnerships--and this is getting into the third question--we have to come to grips with what students in high schools and colleges are getting out of their jobs now; what is the education they're getting from work. There's a tremendous untapped educational potential among the majority of students now working.

MARTIN COVINGTON: *At U.C. Berkeley, something like 28% of the students are working half-time or more. I was surprised by that.*

DAVID STERN: This is one of those gradual trends that has been occurring over the past twenty-five years more or less unnoticed, but has profound implications for the way we conceive the joint efforts of business and schools in the educational process.

MARTIN COVINGTON: *Let me ask now about the minimal responsibility of schools--which is not being satisfied in many cases--in educating students to compute accurately, read with some basic understanding, and write intelligently. Is it enough to have these basic competencies in view of the experience of business in upgrading and training employees, or are there other factors?*

SAUL ROCKMAN: I'd like to attack business for not taking responsibility for differentiating among the skills. This is something that Al Shanker [President of the American Federation of Teachers] has been pushing recently as well: that a high school degree is believed to make everyone equal and that once students have this degree they are eligible for employment. At higher levels we believe that an MBA from Stanford is worth more than a degree from "Matchbook" university, but we don't believe that we need to look at high school transcripts, interview teachers, or talk to previous employers before we hire someone who has a high school degree. That, in some ways, is irresponsible because we can differentiate among high school graduates in other ways than grades.

BRENDA McCHESNEY: At a conceptual level, I agree with you. But on a practical level I'm wondering how high schools would deal with that. We're essentially warehousing a lot of kids at this point and we're moving more in that direction. And we're looking at a shortage of something like a hundred thousand teachers over the next few years in California. So to say the high schools have to deal with this is unrealistic. We have to play some role at the post-secondary level or in business to help them get where we want them to be. I don't think the high schools can do it by themselves because the situation is getting worse.

DAVID STERN: But the point is that it would be helpful to recognize and appreciate some quality differences among high school graduates. A study on why employers don't demand high school transcripts unearthed one amazing quote from an employer in Ohio: "We don't look at transcripts, and besides we wouldn't want to hire somebody with all A's because they'd probably be a misfit."

FERNANDO FLORES: But there's something wrong with this concept that grades indicate something. I'm going to give you an example. One of the founders of Apple, Steve Jobs, is a guy who did not have good high school records and who never went to college. He showed that human beings can learn on the job and educate themselves, and maybe that's what we need to look for, how to give more power to people to continue learning by themselves. We assume that schools today know what they are doing. I claim they don't know what they are doing.

CAROLINE BOITANO: I don't know that we're assuming they *do* know what they're doing.

FERNANDO FLORES: In Greece in the year 1000 B.C. there was no alphabet. The phonetic alphabet we have was invented by merchants for dealing with the Phoenicians. They didn't do this for intellectual reasons; they were very practical guys. They realized that certain mistakes of communication could be avoided by the alphabet we have now. In the year 600, four hundred years after this, commercial practice began to appear and they began to build schools like we have. This was a big innovation: children were going to learn to read and write. Two hundred years later came the great philosophers we still study today. I like to say that Aristotle and Plato never got Ph.D.s in philosophy, but they produced philosophies that still have all the professors of philosophy of the world occupied. The question is how you produce this phenomenon because, in my opinion, we are living in the same moment of society and computers are central to this. You are not going to solve this problem by trying to do more, better. You see a lot of creative people in California today who have not gone to school or have gone only a little bit.

CORNELL MAIER: I want to respond to some comments made earlier. I don't agree that businesses today assume that all high school diplomas are equal. Quite the contrary, I think most businesses, including Apple, assume that high school diplomas don't mean a damn thing, and, therefore, they test applicants to see if they can do ninth, tenth or eleventh grade English, science and math. Secondly, Bill Honig is working on trying to change transcripts but there are a lot of problems.

I live in Oakland. Overall, I suppose, our schools are a disaster. We have among the lowest 5% of test scores in English and math in the state, and our state is second to last out of fifty, so you can see how bad we are. Yet we have a few excellent schools in Oakland where an A in English means something as opposed to other high schools where students get A's for working at eighth-grade level. Grades don't mean very much unless we have uniform testing and uniform standards, but there are a lot of questions about the fairness of tests. California public schools started to decline in the '60s when we decided that high school kids could decide for themselves what they should study. We did away with minimum prerequisites and before Senate Bill 813 was passed in 1983, students could actually get a diploma from some California high schools without studying one hour of history, math or science.

DAVID STERN: I have no reservation about what you're saying, but I think our discussion is not coming to grips with the motivational issue. Some of us learn some things because we like to, but a lot of this learning, especially in schools, is compulsory. If you ask a high school teacher or principal what their biggest problem is, if it's not crack, it will be, "How do you get the kids interested?" That's because schools are in the untenable position of trying to educate kids whose parents can't equip them for this unpredictable world because they're not part of the productive process themselves. So, students are warehoused, as you say, and yet told, "You're here to learn; so learn." It's very difficult to motivate these kids.

It's also difficult in some work settings to motivate people going through a skills-upgrading process. Your L.L. Bean employee might be offered a chance to learn some other function in the company if L.L. Bean is an enlightened employer, but chances are that will necessitate learning something that might be seen as very threatening. So, the question is, along with all the skills we envision as necessary, how do we impart the motivation to continue acquiring such things in school and beyond?

SAUL ROCKMAN: A great deal of research shows that teachers' expectations affect how children learn, how much they learn, and how successful they end up being in school. This begins even in preschool where certain kids are expected to succeed and others are expected to fail, regardless of their ability. There's also a sense that if kids are at grade level on standardized tests by third or fourth grade, they'll continue to be successful throughout their school experience, unless some external event intervenes, because teachers from that point on expect those children to succeed. Maybe we need to focus not on the high school students, who are leaving, but on the primary grade students. We need early intervention programs to get those students performing to the point where their teachers expect all of them to succeed. Recent immigration status, ethnic origin, sex or race may not be as important as a minimum level of success at a certain stage in life.

KIT DURGIN: I think what you're implying in your comment, or at least what I infer from your comment, is that there's only one way to be successful in the system as it is now structured. The educational system doesn't have the ability to adapt or be flexible to different ways of learning, and, therefore, it's not motivating a whole set of people. I'm one of those people. I didn't know I was smart until I got out of school. I think if the education system can demonstrate the adaptability and flexibility needed in the workplace, then role modeling can begin at early stages. That's how people learn.

BOITANO: I want to get back to Brenda's comments about fragmenting. I think we have to get from the educational system a set of expectations that will carry us to age 89 or 93. If we really want a good reader in first grade, we can't think only of skills--whether they can decipher letters or words--but also of aspirations. It's aspiration that so many students are missing, not to mention a lack of expectations on the part of the citizenry as a whole.

BRENDA McCHESNEY: Another thing is not training children to think that they're being educated for twelve years just for the workplace. School is not something to graduate from because they have to go to work. Learning is a lifelong experience--in the workplace, in recreation, in all areas of life.

DAVID STERN: If we were empowered collectively as a society, I think we would see both business and schools as instruments for the achievement of this kind of vision rather than talking about what business wants of the schools or vice versa.

MARTIN COVINGTON: *Your example, Caroline, of the youngster seeing schools not as a contest but as an opportunity for cooperation gives me a perfect way of thinking about what the world of work should be like as opposed to what it's going to be like or projected to be like. That is, if we instruct and encourage youngsters to be communicators and to have conversations, the world of work, as a preferred world, will change.*

CAROLINE BOITANO: I don't mean to eliminate competition from the arena because I think in the current environment competition is a part of what goes on in business and it should be a part of it. But it shouldn't be the only motivating driver.

MARTIN COVINGTON: *What about some educators' view, which I think is erroneous, that we need competition in the schools to prepare children for the real world, and that without it we're being visionary and utopian. For those of us in the world of work, what's our take on the role of competition? Is it all that vital? What part does it play? Is there such a thing as healthy competition?*

CORNELL MAIER: Well, I'll stick my neck out. I think competition is essential. I agree it shouldn't be the only thing, but we need to challenge those good minds in the schools and in the system to do their very best, and competition is part of that. I think to discourage competition would be very bad. Besides, we aren't going to eliminate it anyway because some parents are going to motivate their children to be competitive or they are just going to be competitive by nature.

BRENDA McCHESNEY: I think we get nervous about it because when we say competition we automatically think someone is going to lose. If we can frame it in a way where the competition can encourage everybody to move a step ahead, then it wouldn't have such a negative connotation.

DAVID STERN: Of course, in the marketplace, some people do lose. People are losing their shirts all the time.

CORNELL MAIER: I think we need to prepare people for losses because there are going to be some losers. We are born with different skills and intelligences, so I think we need to make clear whom we are in competition with. For example, youngsters who, with the best motivation, get only C's but can be trained as electricians--well, that's a marvelous achievement. Maybe they are doing better with their potential than the ones with A's. I think we ought to encourage them and not make them feel they are failures because they are not A students going to college.

MARTIN COVINGTON: *You're suggesting that, although we need to prepare people to lose, we don't want to prepare people to be losers.*

CORNELL MAIER: That's right. Labels are dangerous, and I think that's the problem with talking about competition as the factor that's going to measure things by the end of the quarter, or the end of the year. Kids have to find out that even if they lose in a particular endeavor, they can move to another and still be successful. Their options aren't closed off because of one failure.

DAVID STERN: To fail is not to be a failure.

SAUL ROCKMAN: Along with failure is the notion of risk; that's another thing we haven't been teaching kids in school. Students aren't encouraged to take risks in school. It's the safe student who succeeds in school; it's the safe student who gets rewarded by the teacher. The kids who take risks are the ones punished by the system.

DAVID STERN: Or labeled "at risk."

CAROLINE BOITANO: That's why it's important that schools create an arena for open discussion, for multiple approaches to problems, for being wrong and not being labeled wrong. Competition is going to remain the center of a lot of things, but sometimes the competitive aspect has to be removed so kids can discuss things in a more free-flowing way.

SAUL ROCKMAN: Conversation is a problem in some cultures. Let me relate a story told to me by a teacher in a San Francisco school that has a lot of Asian students. This is an enlightened high school teacher who wants to have cooperative work groups and discussions which the children report on. But at an open-house meeting two of the Asian parents said, "We want <u>you</u> to teach; we don't want the students to teach. You know everything; they know nothing. You be the teacher; you tell them."

FERNANDO FLORES: Maybe there is value in that. I also want somebody to know how to teach my children. I also want them to know how to use participation and conversation sometimes. I don't want excuses for not teaching. I want conversation *and* teaching.

MARTIN COVINGTON: *I'd like to get your thoughts now about what we might do to encourage collaborative effort between schools and the workplace. How do we prepare our young people for the kinds of dispositions, attitudes, values, skills we've discussed? What is the role of business in this function? Should we think of other kinds of restructuring different from the assumed partnership arrangement?*

FERNANDO FLORES: Before we go to question number three, I want to return to question number two. In my opinion, we didn't reach any important clarity that allowed us to see question number three, so I want to open a point of view. We talk about skills and knowledge, but really, we don't know what we are talking about. What I learned from science, before studying philosophy, is that science is powerful because every worker in science knows how to observe the basic distinctions that scientists have accumulated. Take, for example, DNA. DNA didn't exist as conversation in science up until the 1950s, which then produced a Nobel prize for Watson and Crick. But today, you cannot be a biologist without knowing about DNA. It's in all the textbooks, and every person working in a biological laboratory in a hospital doesn't need to be a great biologist, but sooner or later they need to know how it is connected, one way or another. You realize that all the bio-tech companies are a product of this conversation called science that is able to introduce new distinctions. A new distinction doesn't mean only new words. It means new skills of observation, of assessment, et cetera. I believe what makes biology and physics so useful for health and engineering is that you produce universal observers who are practical, pragmatic guys at the same time.

So, there is something in language that is deeper than words. We call that something a *consensual operational distinction* that allows you to operate successfully in the world, the world you invent. If we didn't have this distinction things would be pretty vague, more in the nature of an *opinion*; I believe that is what happens in education today. Take the phenomenon of reading. Many people believe that reading is codifying words and putting pictures in your head. But the pictures for small children, seven years old, are different from those of a thirteen-year-old. The thirteen year old is thinking something very different.

I'm going to give you an example. In schools today, they talk about sex, but they don't talk about relationships. We have produced a society of ineffective relationships. I did a test in my family with my daughters. I wasn't satisfied with my parenting in the area of relationships. I wanted to teach two things to them. First, I wanted to teach them to learn to learn, because I am convinced that the schools don't teach that. I said to them, I promise I will teach you to learn how to learn, to write papers, and after, to apply this to some field. What field are we going to apply it to? We are going to apply it to learning about love. I have two credentials for teaching about love, I said. One, I have been married to your mother for 27 years and still we are interested. The second is that I have studied love philosophically and I have studied the book *About Love*, by Roland Solomon, who is a professor of philosophy at the University of Texas at Austin. I don't know if you realize that Americans now all talk about "working" on relationships. There is no more pleasure, no more fun. I said these Americans are fantastic. They are working on their relationships, on their diets, on everything; there is no more pleasure in life. But, I didn't have this problem. I asked myself: What happened that was different for me that is not happening for my daughters?

My children believe that love is feelings. According to my own scientific information, feelings don't exist. I called a friend and said: You are a doctor. Tell me, when you open people, do you find feelings inside? No. What do you find? Bones, blood, sweat, heart. So, then what are feelings? And we began to play with this idea and we said that feelings happen when you

talk about feelings. Then I began to make some distinctions: Falling in love, the boreing aspect of maintaining cooperation over the years of a marriage, and how you keep love with a person who is changing and getting older. I talked to my daughter about that and she wrote a paper on it. Then I said, I want to connect this with *learning*. The test for me that you have learned about love, is if you can teach it to your friends. Now they are doing a seminar on love and reading Solomon's book at their dorms at U.C. Berkeley.

Now, why do I say all this? Because I have learned what learning is. Learning doesn't happen in the brain. Digestion doesn't happen in the stomach; it happens in the body. Learning happens with the whole body. How do you observe learning? You cannot learn to learn if you do not know what learning is. The only way you know that learning is happening is by observing behavior, and when I say behavior, I am not being a behaviorist in the traditional sense. I say, behavior is operating in *linguistic social space*. You learn not only where you perform action, you also learn when you can give reasoned arguments and participate in social discourses.

Take, for example, learning to drive. It's an essential skill of this society. How does learning to drive happen? First you need to have linguistic distinctions. Learning to drive means knowing how to operate in a social situation. When you see a stop sign or a red light you need to know what happens. You need to interpret both in action and in advance. When we learn learning, first, we learn a language. Second, we learn how to operate with this language in action. You are a good driver when you operate the distinctions without thinking of them and you can think of something else. Who is a bad driver? The guy who doesn't observe distinctions or is so attached to looking at distinctions that he commits a mistake and produces an accident.

But that is valid for everything. Your second question was: What is the number one skill that every high school graduate should possess? I offer that this skill is a minimum mastery of learning to learn. This applies to kids going to college or working in a company; it's a skill for life. Society didn't need this skill in the past because they basically learned standard practices, standard knowledge, and you didn't need more. Now you need to learn to use a different computer every month, or something like that.

MARTIN COVINGTON: *Well, learning to learn, I think we would all agree, is a crucial feature of survival now or in the future. What struck me about your comments was your remark that to show you have learned, you must be able to teach someone else what you learned. It suggests that part of the partnership arrangement between business and education should be practical hands-on learning. That might be a good bridge for eliciting some comments as to our individual experiences in our own workplaces regarding what that partnership might look like, what the action side of the process might be.*

DAVID STERN: I have some comments. I'd like to describe briefly two settings where employees have been asked to learn something new and where peer teaching has become an important part of that. Then I'll describe a model in California where I believe that kind of dynamic may be developing as a result of a school/business partnership.

Some colleagues and I have been able to observe some of the training at the New United Motor Manufacturing Inc. (NUMMI) plant, the famous auto company across the Bay which is a partnership between General Motors and Toyota, and there really is a different way of working there. Workers are organized into teams, and team members, to some extent, cross-train each other. But it's the responsibility of the team leader to facilitate the learning that is expected to go on all the time: one is learning to do the operations as they are currently conceived; the other is learning how to improve the set-up so that the whole operation is more efficient and effective. So, there's a learning of what's known and a learning of what isn't known. So far it seems to be a successful example of the new workplace where a lot more learning is expected as part of the work itself and where workers teach each other.

This is more pronounced in a little insurance company I've been visiting in Roanoke, Virginia called Shenandoah Life. They've been around for about 60 years, and during the Depression they never laid anybody off. A while ago they created an elaborate paper knowledge scheme for customer service representatives. You probably know about these schemes: they get paid according to what they know because they have to keep learning so much to keep up with the new kinds of insurance. The customer service representatives are constantly teaching each other and telling each other stories, saying, "Did you hear about the call that came in?" or, "How do you handle this kind of thing?" This seemed to be a paradigm of the new work place until I called last week and found out they had hired a new president who decided that 40 of the 250 people at these headquarters had to be let go. I was told that until they've mopped the blood off the floor we shouldn't come back and ask any more questions. This sad story illustrates a fundamental limitation of what we can expect of corporations as educational institutions. That particular corporation was an exemplary educational institution for its employees but, faced with some business necessity, they rejected their implicit contract with employees.

On a more optimistic note, I think it is possible to program into conventional schooling some elements of this *situated learning*--that's a current trendy phrase in education. Some cognitive psychologists tell us that real learning is situated learning. Since school learning doesn't really transfer, let's develop opportunities for situated learning that includes this kind of peer teaching. The important thing is that knowledge is embodied in the group, not in one person; being able to access the knowledge of the group is essential at NUMMI or any other workplace. Manufacturers talk about *just-in-time manufacturing*, but this is *just-in-time learning*. Instead of building up stockpiles of information that deteriorate and get damaged, the learning takes place when and where it's needed. It's motivating, too, for students who can manage to get involved in this kind of thing.

There are examples in California, replications of the Peninsula Academies, which are outstanding examples of school/business collaborations in California. They've had considerable success with ninth-grade students likely to drop out. They've put them in a school within a school that's focused on an occupational theme such as health. Oakland Tech also has a health academy where there's been tremendous involvement with the medical institutions in their vicinity. They provide a very rich learning experience that is situated, collaborative, interactive, and conversational. It enables students to learn stuff they think is real, and, indeed, it is real. But it's also possible to package it into the conventional

academic subjects of science, math and language. So, I think we can see some instances in schools and workplaces where this kind of learning is taking place, but I'd say they are exceptions rather than commonplace.

MARTIN COVINGTON: *Thank you. Reactions or stories to share with regard to this?*

CORNELL MAIER: I think ten years ago a lot of us in the business community thought the way to solve the problems in the schools was to encourage adopt-a-school programs, to give computer and technology assistance, and so forth. But recently I was at a meeting in Santa Rosa where the superintendent of schools said something very important. He said: "We want business community involvement, but your money isn't going to solve the problem; your collaborative programs aren't going to solve the problem; your adopt-a-schools aren't going to solve the problem. We need your help in changing the whole system of how we run our schools. If we don't do that, all the rest of these things, which are nice and which we appreciate, aren't going to produce any significant change."

The Roundtable sponsors some legislation. Senate Bill 1274 has been passed by the Senate and is now in the Assembly where I'm confident it will be passed in January. I'd say this bill is an effort to return control of the schools to the local people. Our objective is to force more of the responsibility and more of the accountability on to local districts. Today, teachers have very little to say about curriculum, parents have no input, and business has little or no input. If this bill is passed we think business will work with school districts to try to figure out innovative ways to get administrators, teachers, parents, business, and community people involved and working together. But one bill is not going to solve California's education problem. There are a lot of other issues: children's health, child care, the divorce rate, the high percentage of our population on welfare. We're going to have to do a lot to meet all these problems.

BRENDA McCHESNEY: I agree that one piece of legislation isn't going to solve the problem. There are other bills, such as AB 1417, the educational technology bill, that the business communities have also been involved with this year. The individual pieces of legislation crossing the governor's desk are not as important as the fact that business is as aggressively involved in the K-12 curriculum as it is. Businesses are now working as partners with educators to move these issues forward at the legislative level, and that's a new development which is starting to create a safer environment for politicians to act on some of these issues. We're seeing partisan factions or traditional adversaries in the legislative processes coming together. They're raising the stakes and saying, "This is an important issue, guys, and we need to solve it together." This is happening far more than in the past and I think it's very significant.

SAUL ROCKMAN: I think the most important part of the Roundtable legislation is that it recognizes that a combination of actions is required to substantially change what's going on in education today. There's an educational sociologist who talks about roles, rules, and relationships as the necessary elements of change, with rules being one of the more important. For instance, relief from the administrative burdens that the state and federal government place on schools is a strong motivator to try something innovative. Some other

elements in the struggle for change are: the relationships between the school and the community with parents becoming involved; the relationship between the central administration and the school building; the relationships within the building between administrators, teachers and site-base managers; the roles that students play in tutoring and cooperative learning; and the roles that teachers now have as facilitators of learning, rather than the all-knowing providers of learning.

Change isn't going to happen because some mandate says you must change. What we know about change in schools suggests that when you're talking about changing curriculum and teaching methodologies, you're really talking about changing one classroom at a time. When you're talking about changing the nature of what goes on in schools, you're really talking about one school at a time, and in doing so, you change the definition of school.

In New York, there is a district where localism is the rule. A school can be multiple schools within the same building, each floor being its own school. That's a new definition of a school and it requires waivers. Dade County in Florida has a national RFP [Request for Proposal] to design new schools. They're going to build 49 schools in the next four years, and they're open to recommendations for new program ideas.

There are all sorts of innovative ways to involve business as a partner in making change happen. But there's a dark side to this, if you will; the side that says, if schools can't do it themselves, business will do it. When I look at teaching problem solving, study skills and creative thinking, the group that has done most to teach those skills is not the school system, but Stanley Kaplan. He started the company that prepares students to take the SATs and other placement tests. They teach students how to study, how to solve the kinds of problems they'll be tested on, and they've taken over that responsibility, for the middle class, at least.

The real fear comes when, over the next decade, let's say, schools can't change enough to show business that there's a difference in their "product," that they can provide products that won't fall off the assembly line. My fear is that my grandchildren will go to McDonald's elementary school, the Xerox Junior High, and Pac Bell High School.

FERNANDO FLORES: Or the Mitsubishi High School.

CORNELL MAIER: That's troublesome to me because as much as I'd like to see schools improved, I don't want them to be controlled other than by the people who are the voters in the area. But the fact is that if I want to learn how to run PageMaker on my IBM, I can take a course at Pac Bell. The consumer and the student are being offered opportunities by private businesses to make up for the learning deficits the schools haven't been able to deal with, and that's a disturbing step in some ways.

BRENDA McCHESNEY: I don't think business wants to get in and control the schools. The fact that we're jumping in at this point to help solve the problem says, I think, that we feel the business of education is with professional educators. We have skills we can offer but I don't think, by any stretch of the imagination, that we want to have a Pac Bell Unified School District.

CORNELL MAIER: I agree. I don't think that business wants to control the schools. But one trend that is continuing, and it worries me, is that there are more private schools and more children of the affluent middle class going to them. The ones really being left behind are the kids we call children "at-risk," who are basically poor, minority children. There are still people stupid enough to believe that race or color or creed has something to do with learning ability; it's the economic situation that determines it. In California, a disproportionate number of our low-income and poor people are Black or Hispanic, and they're the ones being left by the wayside. If the public schools don't improve, we're going to have a fairly well-educated population of kids in private schools and a growing population of poorly educated kids in public school; and the consequences for the state and the country are going to be very serious.

KIT DURGIN: Going back to Brenda's comment about fragmentation, what I'm hearing is that it's education's problem and businesses don't want to get overinvolved. It seems like business has gotten very involved in this legislation, which is very exciting, but my question is to what degree business will roll up its shirt sleeves and be part of the constituency in those communities. It seems to me that they could be key to its success. I think Cornell's point about private schools is really important and substantiates my first comment. That is, why are private schools successful? Among other reasons, it's because they have money and resources; it's because there's so much parent involvement.

CAROLINE BOITANO: *Some* private schools have money and resources; most don't. They operate on far fewer resources than public schools, and I think this is something we really need to remember. We also need to remember that in this state 85% of the kids will be in public schools, not private ones. We have the biggest school system in the world in this state--we're talking billions and billions of dollars. The program that the BankAmerica Foundation set up raises a million dollars a year. That is nothing--zero, zip--to have an impact on the educational structure. I think you have to keep in mind that education is business, and in this state it's big business.

DAVID STERN: Well, when you have private schools that are chosen voluntarily, you change the definition of the situation from incarceration to opportunity. There's a great deal to be said for "choice," whether it's between public and private schools or within the public school where different programs compete. To improve schools, there is also a need for more voluntary contribution by adults. The Peninsula Academies I mentioned brought forth a wonderful voluntary effort by representatives of local employers who work as mentors and provide a lot of person-to-person time with kids in the schools. The benefit of involving the local community is in the unleashing of this voluntary energy that brings parents back again and again to know what's going on in the schools, to support what the schools are doing.

Adult time is the scarce resource. The kids' time is still regarded as free, something we have to occupy and use productively, but not in a real *product* sense because they're not really productive the way adults are productive. They don't get paid for what they do. Looked at historically, it seems that with industrialization children became a cost instead of an asset. Until we come to grips with our fundamental failure to recognize the economic value of kids' time here and now, and not just in terms of what they will be in the future as workers

and parents, schooling is going to be separated from reality and kids are going to be viewed as baggage, as a burden, and as a cost. So, I think these reform efforts are commendable but, in my view, if you want to talk about the "r" word and really radical school reforms, you're going to have to change the economic definition of childhood to what it was before industrialization made children useless.

CORNELL MAIER: I think one of the real challenges facing educators is that, like it or not, they are going to have to perform some of the tasks that we have expected of parents, because in the world as it exists today--more women working, more people on welfare and so forth--parents can't play the same roles they did, 30, 40, 50 years ago. I think the most difficult problem is getting parents involved--and nothing is going to happen unless we can get out there and do some work in the whole community.

CAROLINE BOITANO: I would like to broaden that to getting society involved--parents and non-parents. There are more non-parents than there are parents and at some point I think we need a convergence of interest from the broadest spectrum of society or it will not work. The question is how to do that.

MARTIN COVINGTON: *Let me see if I can help us move toward the how question. With our interest in the "r" words, radical reform or revolution or restructuring, and in a lot of what has been said about situated learning and shared knowledge, I hear a convergence on the "a" word--apprenticeship. What meaning does this word have to you in terms of the relationship between business and schools?*

CORNELL MAIER: Well, I think it's important. We had a kind of apprentice program with the University of California and the Berkeley/Oakland schools and Kaiser Aluminum years ago. It was designed by the University--we didn't try to be educators--and the kids who participated were juniors and seniors from the Oakland high schools. Most of the teachers were volunteer faculty from either Merritt College or the University of California at Berkeley. The kids went to Merritt College in the mornings to be in a different atmosphere from the high school, and then we arranged jobs for them in the afternoon. In many cases the kids were paid and eventually were hired. The kids were interested in earning money, but they had to go to school to do that. They learned all kinds of skills. Every morning they had to report how they did on the job, and later they had to write about the job. Some of the students picked for this program were high-risk kids, C students, but they did very well. Still, I don't think we're going to solve the problem unless we get to fundamentals.

DAVID STERN: Well, I would argue that that *is* something fundamental, and in fact . . .

CORNELL MAIER: Restructuring the school, I think, is more fundamental.

DAVID STERN: Well, we see these kids restructuring their lives while you're restructuring the schools. The kids are going to work because they want the power and income and the sense of being part of the real world. The kids have essentially followed the women's movement in their search for financial independence. Some of them are getting legitimate jobs, some are getting apprenticeships of the kind you described, and others are selling crack.

Anyway, I see the kids doing the restructuring. The question is whether we can somehow contrive a way of making that an experience that has some educational value for them, or whether their experience in the real world is going to undermine further their belief that what's happening in school has any importance. The evidence is quite clear. Kids who get well-paid jobs in high school are more likely to drop out. What's cause and what's effect isn't clear: whether the kids who want to drop out go and get good jobs or whether once they get a good job they decide they really don't need school. In any event, there is often this same undermining effect at the college level. If employers want to be educational partners, one easy way to do it would be to look at all their employees who happen to be students and ask them what educational purpose the job is serving them. Just sit down and talk to them about that. That would be a tremendous contribution.

MARTIN COVINGTON: *It sounds to me that we're getting back to Saul's concerns regarding Mitsubishi High School.*

SAUL ROCKMAN: Well, it goes back to the issue of money. I will argue that money *is* the problem because we don't use it well. We need more of it, but we don't use what we have well. In the traditional schooling we have today, if you're successful in working with at-risk children, you lose money because the additional money you have is taken away from you. You no longer get Chapter 1 aid if all your kids are reading well and doing math well.

There is an inequity in the distribution of money; that is, a good high school somewhere down the Peninsula has all sorts of additional resources thrown into it because the school is probably a decent place to work, teachers are encouraged to write proposals for grants, and you can get some support from the district office which probably has a grant writer there. That's in contrast to large cities around here where disruption is the norm and teachers are not encouraged to work extra hours to produce a grant proposal that would bring extra money into the school.

The amount of money California spends on education is equivalent to the federal education budget--about $22 billion, and that's a lot of money. It brings up the issue of how to use the money you have to do the thing you want to do. There are some experiments being played out now where a school site gets the ADA (average daily attendance) for that district; so, if you have 100 or 200 kids and they're $5,000 a piece, you get that amount of money to run your school. How you spend the money is up to you. That allows a different allocation of resources. It allows you to think in more productive terms about how you might want to organize your school. It might be that one teacher and two aides could handle 100 kids instead of 33 kids in a classroom. That may be much more productive.

DAVID STERN: You know, there's a lot you can do under existing law within the public schools. There's Independence High School where all the kids are in independent study and don't spend any time in school.

SAUL ROCKMAN: Yes. The place of school could be industry. In Minneapolis or St. Paul, I forget which one, they're trying to locate a school downtown, in walkways, in extra space in malls, so that the school becomes part of the community, and it may be that when the

school progresses in a few years, students will work part of the day on the mall and go to school on the mall. The location of school and the allocation of resources within the school can, I think, lead to different values about what school is supposed to accomplish.

MARTIN COVINGTON: *An interesting possibility for answering the question of how we can make school meaningful to people who are already in the workplace and how we can keep them from dropping out is what Fernando talked about earlier--teaching people about love, and particularly about relationships which they will confront in school, at home, and at work. This would require radicalizing the curriculum and adding instruction in interpersonal skills to the basic skills repeatedly mentioned.*

FERNANDO FLORES: A reflection I want to make is that you are all capitalists at this table. In my opinion, the market works very well when promises can be delivered and the market works very bad when a smokescreen is offered and promises are not delivered. To give you an example, when IBM invented the computer for business use, and I know there were others but IBM was the most successful at that, they invented an educational system. They invented new professionals. They took many people and leapt ahead of the university, ahead of the public schools. Computer science was viewed as a distinction in grade schools in the '70s, but it was a distinction for IBM in the '50s and at that time was taught by industry professionals. Why did this happen? Because it was profitable for IBM to do all this training. I believe that Apple's success with computer graphics is also a good example. The one thing missing, I think, is that people don't know what to expect.

As a father, I am willing to pay a lot for education about love, as long as I trust that people can deliver that education to my children. But a wrong decision here stays with you for the rest of your life. There is a lot to teach in this realm, and there is the possibility for a lot of mistakes here. The truth is that 99% of what you see in the marketplace about how to run your life doesn't work; it's based on a collection of opinions, on the words of people like Leo Buscaglia, or the more colorful Donahue. That is what I call "lore." You can get it in how-to books, which sell very well. There is a lot of concern about these things in this society.

I can give you another example: selling. How many companies need good salespeople? But you don't learn this in the university. You learn it the hard way. Now selling is a very important communication skill because when you sell you don't sell a product only. You sell relationships, you sell trust, you sell support for your client. And today the only people teaching this skill are the small companies or different types of service organizations. My company does it. Successful people pay very well for this. There is an emptiness when you realize that learning reading, writing, and mathematics is not going to produce successful people. They do not motivate anyone. The kid of fourteen wants to solve the problem of his identity or how he's going to find a job, a career; he's willing to study reading and writing for those purposes. I, too, believe that education is big business and in the '90s and in the 2000s, it will be more so.

DAVID STERN: Well, schools are in the ADA business in this state. As an economic transaction, they sell ADA to the state.

MARTIN COVINGTON: *I think we must call a halt to the discussion now, but let me first say to Fernando that since you are an expert on conversations would you in two or three sentences describe the conversation we've had this morning?*

FERNANDO FLORES: I would say that sometimes the conversation went off in a direction we didn't expect and it changed direction many times. Many times, we did not know what we wanted to say. At some points we had a very creative technological conversation that frequently lost direction. Why? I would say because we do not have certain minimal agreements, and when you want to make progress, you need to do two things: You need to invent conversations that are creative and speculative and at the same time you need to establish some criteria that allows you to speak with some authority, with some truth. Otherwise you become just another Donahue.

MARTIN COVINGTON: *I go for David Letterman, myself. Well, with that we want to thank the panel for their part in this discussion and we now look forward to more informal discussion at lunch. Thank you.*

Adjournment